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No. IV.

ADDITIONS,

MADE BY

DIRECTION OF THE COMMITTEE OF CORRESPONDENCE AND PAPERS, TO PART I., VOL I.

MR. BUSH'S IMPROVED CASTER.

Page 61.

THE description of this caster is not as complete in some respects as might be desired. It is not stated, that one of the principal objects of the inventor was to diminish the friction, and liability to strain the axis, which exists in all the casters adapted to common furniture, for which purposes he employs an arrangement not very unlike that which has been adopted for large bedsteads, but which required considerable modification to apply it to the legs of ordinary tables.

It will be understood that, since the wheel of a caster is not directly under the leg to which it is attached, there must always exist an oblique strain on the axis of the caster, tending to twist it off; and that the resistance to this strain, in the running part of the caster, must give rise to great friction, the amount of which will depend on the more or less favourable nature of the leverage by which the strain is resisted. In the ordinary caster, the length of the resisting lever can only be the radius of the bottom of the socket, which in the caster of Mr. Bush, as also in the so-called French caster, used for large bedsteads, consists of a long vertical pin, securely connected with the nearly horizontal arm which carries the wheel. This vertical pin forms the other arm of the lever before alluded to, and diminishes the oblique twist in exactly the same proportion as it exceeds the radius of the socket. This circumstance, combined with the smallness of the bearing surfaces, and the protection from dust which the arrangement affords, renders the caster of Mr. Bush very much more free in its movements than any other at present in use. The engraving does not clearly shew the nature of the connexion between the vertical pin *a* and the arm *b*. The former should either be tapered or shouldered, and should fit into a tapered or shouldered hole in the arm, by which the arm would be effectually prevented from slipping up.

MR. WARNER'S SAFEGUARD FOR FIRE-ARMS.

Page 71.

The action of the safeguard will, perhaps, be more clearly understood by the following description:—

The natural tendency of the spring *b* pressing upwards against the projection *c*, is to keep the safeguard in such a position, that the hammer, when falling, will be prevented from striking the percussion cap, by the head of the safeguard *a* falling into the notch in the hammer. In order, therefore, to discharge the gun, the hammer being cocked, and the gun being brought to the shoulder, the finger of the left hand is to be pressed against the tail of the safeguard, so as to bring it to the position marked by the dotted lines, and *to retain it there* while the trigger is drawn by the right hand. After firing, the pressure of the left hand finger being removed, the spring of the safeguard comes again into action, and restores the safeguard to its usual position.

MR. EDWARDS'S WIND-GAGE.

Page 107.

At the end of this article add :—

The best way of ascertaining, on the dial plate, the exact places of the figures which indicate in pounds weight the pressure of the wind on a square foot, is to hang successively 1, 2, 3, &c. pounds on the arm *g*, fig. 1, at the end opposite to that which is attached to the wire, and at the same distance behind the pivot as the wire is attached in front of it; the place of the hand will then indicate on the circle the exact place of each figure, and the errors that might be occasioned by friction would be avoided.